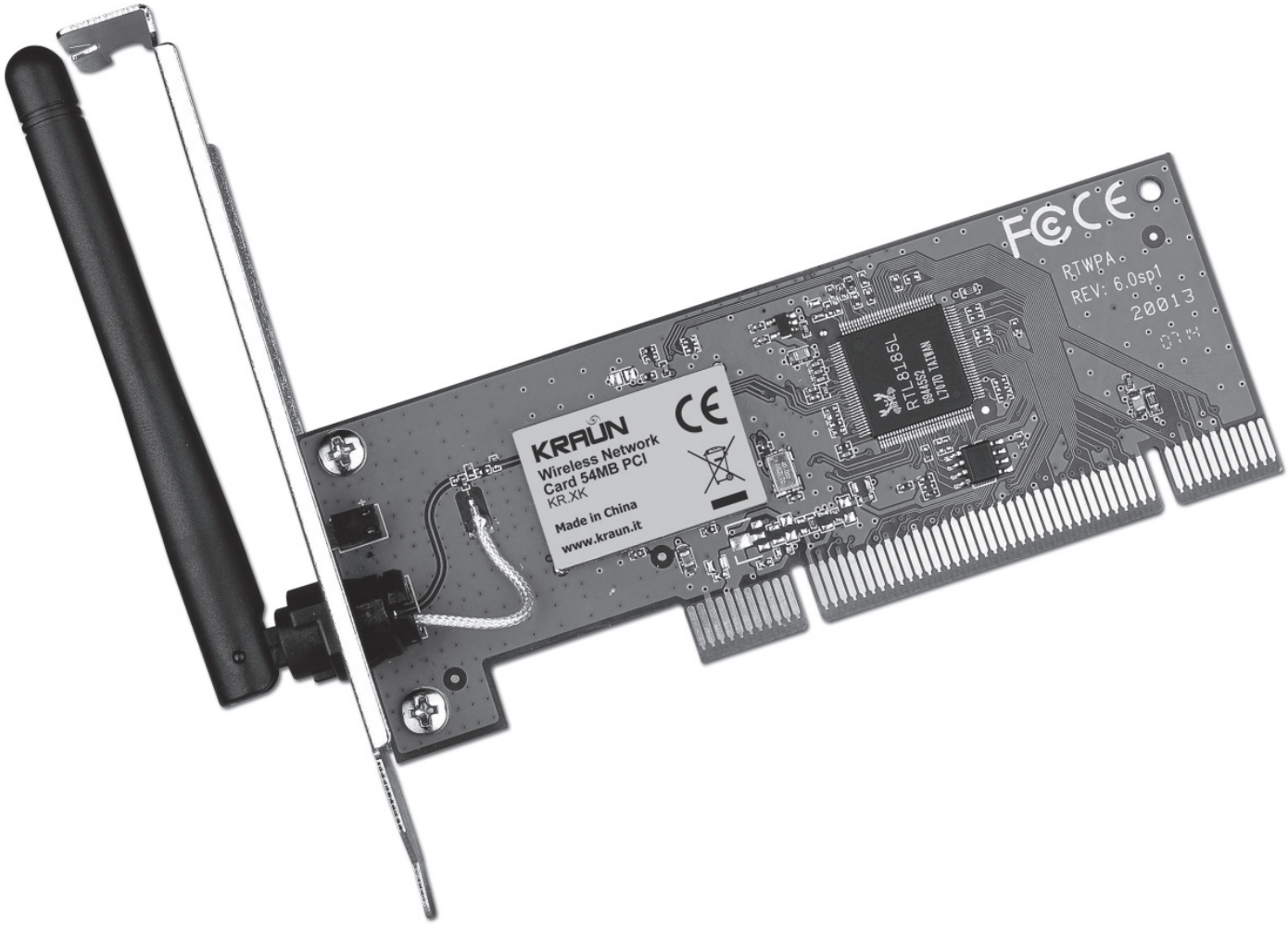
Wireless Network Card 54MB PCI



User's Manual

Cod. KR.XK

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Package contents

The following contents should be found in your box:

- One Kraun KR.XK Wireless Card
- Quick Installation Guide
- One Kraun KR.XK Resource CD, including:
  - Utility and Drivers
  - User Guide
  - Other Helpful Information

Note: If any of the listed contents is damaged or missing, please contact the retailer from whom you purchased the Kraun KR.XK Wireless Card for assistance.

Conventions:
The 'Adapter' and 'PCI Adapter' mentioned in this User guide both stand for KR.XK Wireless Network Card 54MB PCI without any explanations.

1. Introduction

1.1 Overview of the product

The Kraun KR.XK Wireless Network Card 54MB PCI will provide you the flexibility to install your PC in the most convenient location available, without the cost of running network cables.
The Adapter's auto-sensing capability allows high packet transfer rate of up to 54Mbps for maximum throughput, or dynamic range shifting to lower speeds due to distance or operating limitations in an environment with a lot of electromagnetic interference. It can also interoperate with all 11Mbps wireless (802.11b) products. Your wireless communications are protected by up to 152-bit WEP and WPA encryption for high security.

1.2 Features

- Complies with IEEE802.11g, IEEE802.11b standards
- Supports WPA/WPA2 data security, IEEE802.1x authentication, TKIP/AES encryption, 64/128/152-bit WEP encryption
- Supports 54/48/36/24/18/12/9/6Mbps or 11/5.5/2/1Mbps wireless LAN data transfer rates
- Provides 32-bit PCI interface
- Supports Ad-Hoc and Infrastructure modes
- Supports roaming between access points when configured in Infrastructure mode
- Ease to configure and provides monitoring information
- Supports Windows 98, ME, 2000, 2003, XP, Vista, XP64
- Supports fixed antenna.

1.3 LED Status

LED Indications	Status	Working Status
Status Green	Intermittently	The adapter is in an electricity saving status or the adapter is already connected but is not transmitting or receiving data.
Status Green	On	The adapter is on wake up status.
Status Green	Flashing	The adapter is transmitting and receiving data.

2. Installation Guide

2.1 Hardware Installation

To install the Adapter, follow these steps listed below:

1. Turn off your desktop PC and disconnect the power.
2. Open your PC case and locate an available PCI slot on the motherboard. Remove the metal slot cover on the back of the PC. Check with your computer manufacturer for instructions if needed.
3. Slide the PCI Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. Once the adapter is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then, close your PC case.
4. Reconnect your PC's power and turn on your desktop PC.

2.2 Software Installation

2.2.1 Overview

The Adapter's Setup Wizard will guide you through the Installation procedure for Windows XP and Vista. The Setup Wizard will install the Kraun Wireless Utility and drivers.
When you install the hardware before installing the software, the system will prompt "Found New Hardware Wizard", click Cancel, and run the Setup Wizard program on the CD-ROM.
The Setup steps for Windows operation Systems are very similar. The User guide takes the Windows XP for example to explain the installation.

2.2.2 Software Installation for Windows XP

Step 1: Insert the Resource CD into your CD-ROM drive, Click the Start button and choose Run. In the field that appears, enter F:\XXX\setup.exe (if "F" is the letter of your CD-ROM drive, XXX represents the setup program path), then Figure 2 1 will appear; Click Cancel to end the installation in the screen.
Otherwise, the installation will continue.

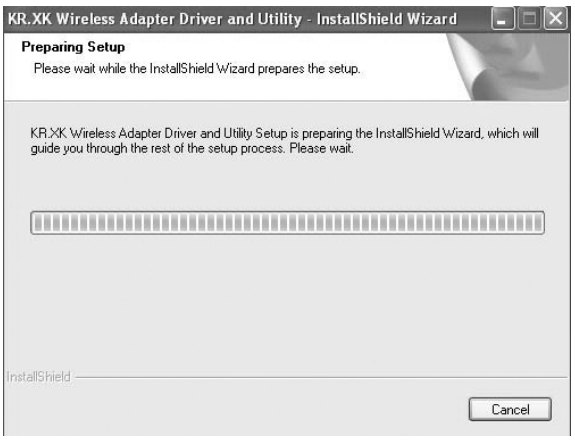
KR.XK Wireless Adapter Driver and Utility - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
KR.XK Wireless Adapter Driver and Utility Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 2 1

Step 2: Click Next in the screen below (shown in Figure 2 2) to continue, you can click Cancel to end the installation.

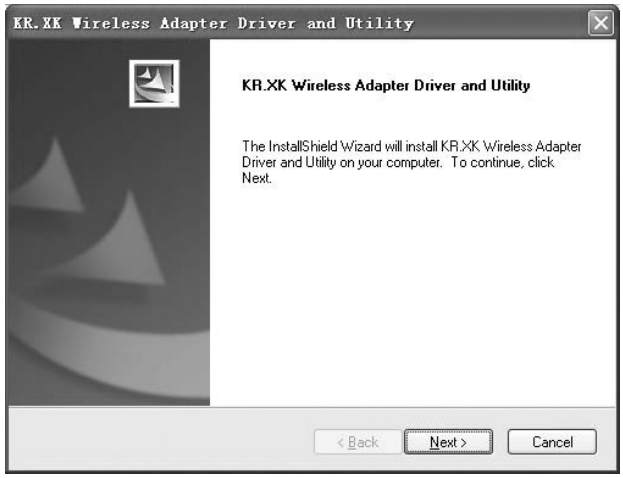
KR.XK Wireless Adapter Driver and Utility
KR.XK Wireless Adapter Driver and Utility
The InstallShield Wizard will install KR.XK Wireless Adapter Driver and Utility on your computer. To continue, click Next.
< Back
Next >
Cancel

Figure 2 2

Step 3: After that, the next screen displays, select Install to continue.

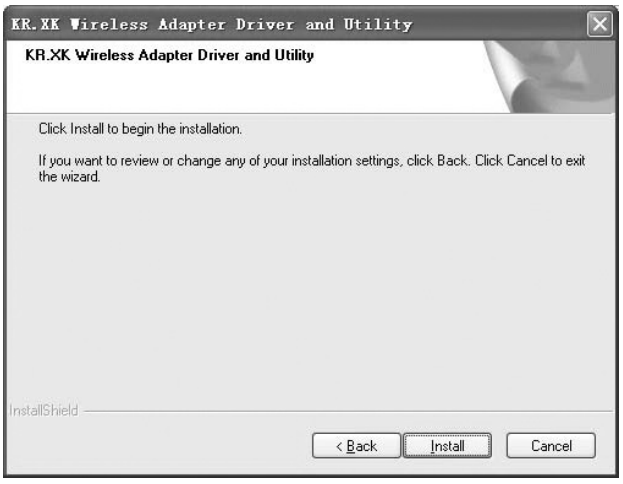
KR.XK Wireless Adapter Driver and Utility
KR.XK Wireless Adapter Driver and Utility
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Figure 2 3

Step 4: In the next screen, the files will be copied as the next screen shown (shown in Figure 2 4). To end the Installation, click Cancel.

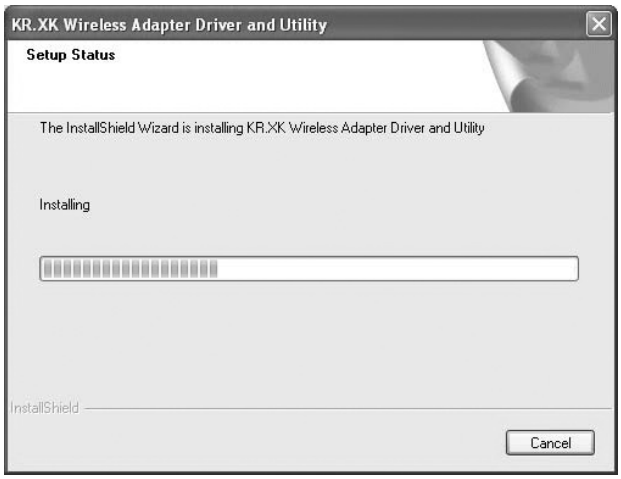

Figure 2 4

-> Note: During the installation, the system will warn about Windows Logo testing, please click Continue Anyway to continue the installation.

Hardware Installation
The software you are installing for this hardware:
KR.XK 802.11b/g Wireless Adapter
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Figure 2 5

Step 5: Click the Finish button to complete.

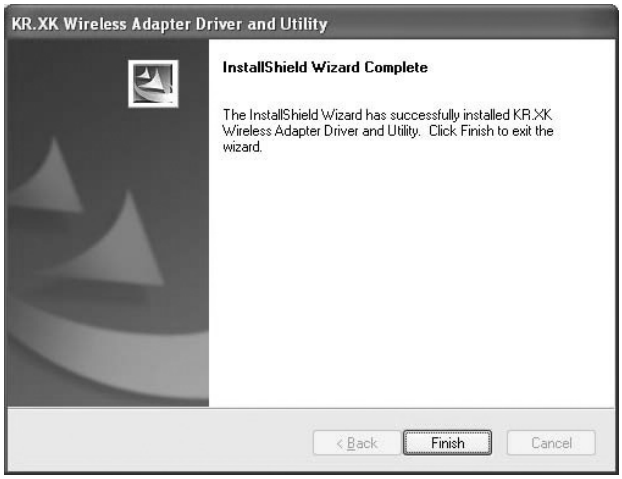
KR.XK Wireless Adapter Driver and Utility
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed KR.XK Wireless Adapter Driver and Utility. Click Finish to exit the wizard.
< Back
Finish
Cancel

Figure 2 6

2.2.3 Software Installation for Windows Vista

1. Insert the Resource CD into your CD-ROM drive, right-click the Computer icon as shown in the Figure 2 6, select the Properties.

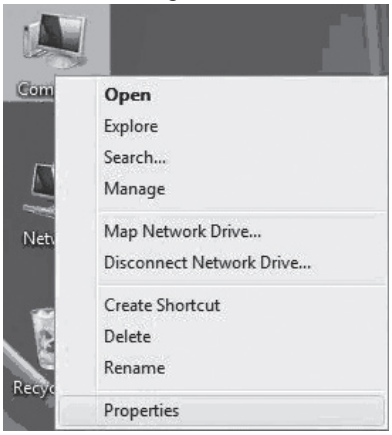

Figure 2.7 Begin installation for Windows Vista

2. Select Device Manager as shown in Figure 2.8, then select Continue in the next screen.

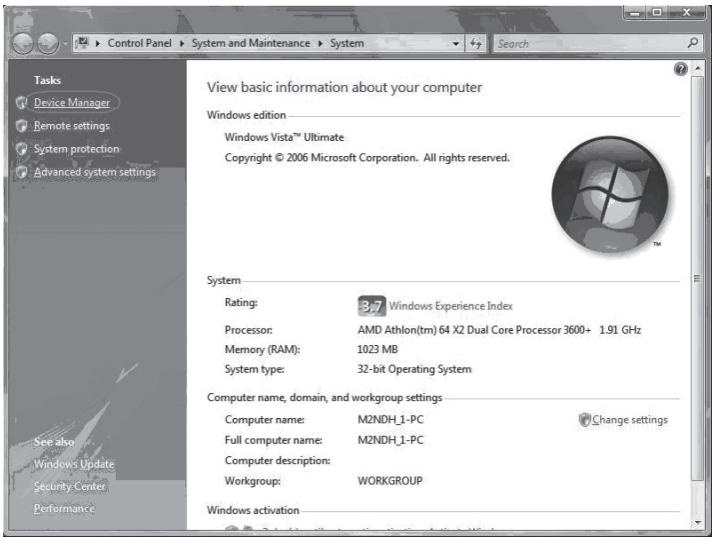

Figure 2.8 Select Device management

3. Right-click the adapter icon "KR.XK", and select "Update Driver Software" to proceed.

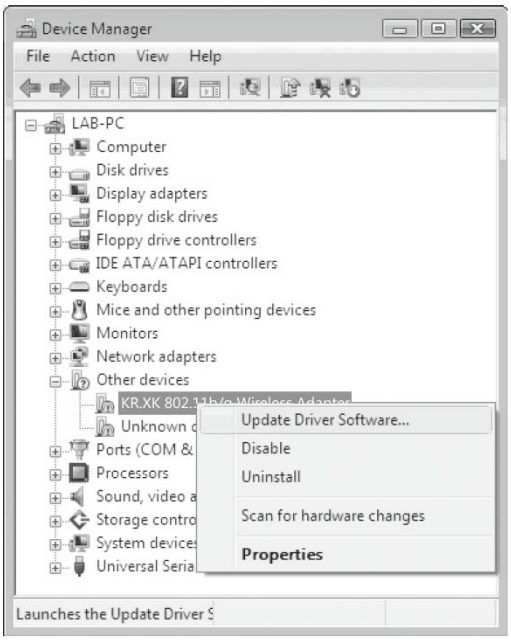

Figure 2.9 Driver management

3. Select the method to update the driver software (see Figure 2.10). If you want the system to search the software automatically, select the first type. Otherwise select "Browse my computer for driver software" to install the software (best way).

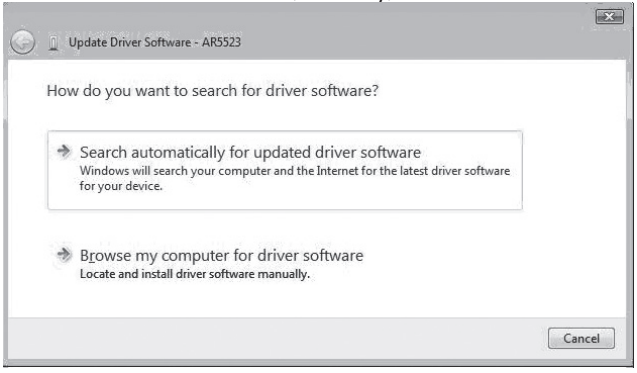
Update Driver Software - AR5523
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

Figure 2.10 Select the method to install

4. Click the Browse button in the next screen to select the file which contains the driver software for the adapter. After that, click Next to proceed.

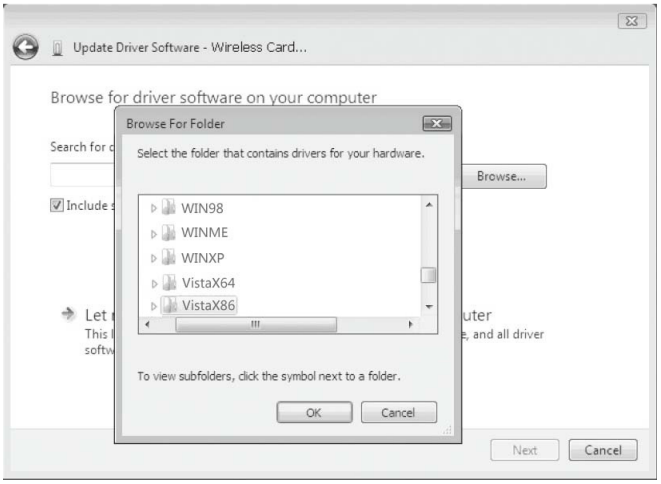

Figure 2.11 Select the driver software

☞ Note:

Vista X86 is designed for the Vista of 32bit, Vista X64 is designed for the Vista of 64bit, please select according as you need.

6. After that, the installation will proceed as shown in 2.12.

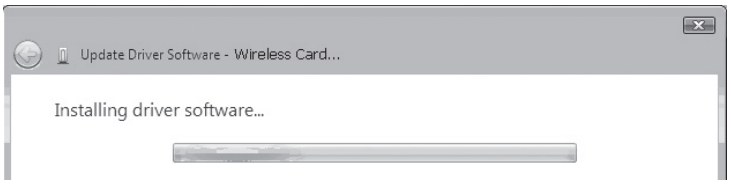

Figure 2.12 Installing

☞ Note:

During the installation, you will see the warning box as shown in figure 2.13, please select "Install this driver software anyway" to proceed.

Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

Figure 2.13 warning for security

7. Finally, the installation will complete, you will see the next screen below, click Close to complete.

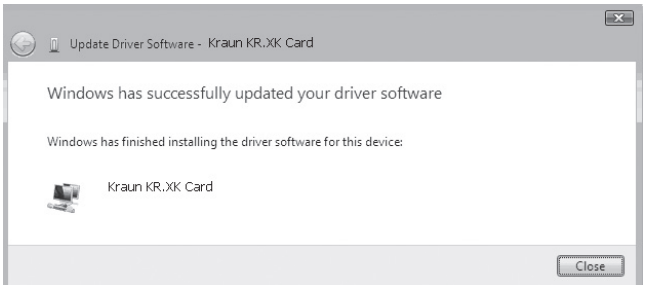
Update Driver Software - Kraun KR.XK Card
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
Kraun KR.XK Card
Close

Figure 2.14 Complete the installation

3. Configuration

Kraun Adapter KR.XK can be configured by KR.XK Wireless Utility. This chapter describes how to configure your Kraun Wireless PCI Adapter for wireless connectivity on your Wireless Local Area Network (WLAN) and use the data security encryption features.

After Installing the Adapter, the Adapter's tray icon will appear in your system tray. It appears at the bottom of the screen, and shows the signal strength using color and the received signal strength indication (RSSI).

If the icon is gray, there is no connection.

If the icon is red, there is poor signal strength and the RSSI is less than 5dB.

If the icon is yellow, there is poor signal strength and the RSSI is between 5dB and 10dB.

If the icon is green, there is good signal strength and the RSSI is between 10dB and 20dB.

If the icon is green, there is excellent signal strength and the RSSI is more than 20dB.

Double-click the icon and the Kraun Wireless Utility will run. You can also run the utility by clicking the Start>Programs>KRAUN>KR.XK>KR.XK Wireless Utility. The utility provides a integrated and easy tools to:

- Display current status information
- Edit and add configured profiles
- Display current diagnostics information

3.0 Configuration for Windows Vista

After the PCI card's driver has been installed, Windows Vista will display a wireless Network Connection message like this one.

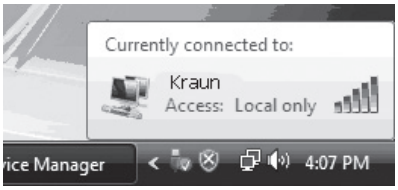

Figure 3.1v

Icon means the connection has been established. Icon means there is no connection.

If the icon does not appear, please follow the steps below. If the icon still does not appear, the driver may be installed incorrectly or the adapter is unplugged, please try again.

1. Right-click the icon in your system tray, then click Connect to a network.

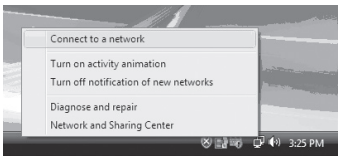

Figure 3.2v

2. The screen that appears will show you many available wireless networks. Highlight the network that you want, and then click Connect

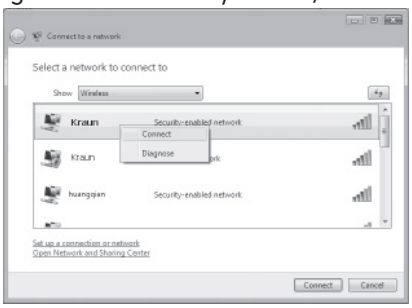

Figure 3.3v

3. To continue, click Connect Anyway. Click the Cancel button to end the Installation.

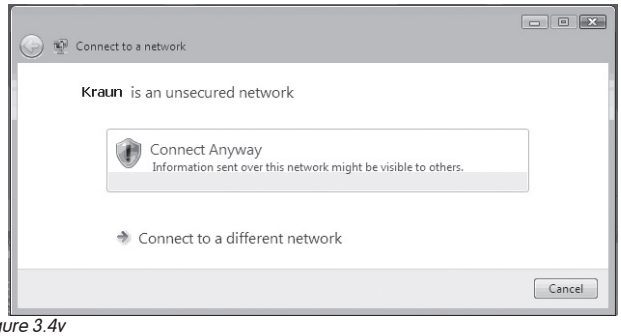
Connect to a network
Kraun is an unsecured network
Connect Anyway
Information sent over this network might be visible to others.
Connect to a different network
Cancel

Figure 3.4v

4. After that, the installation will proceed as shown in Figure 3.5v, click close.

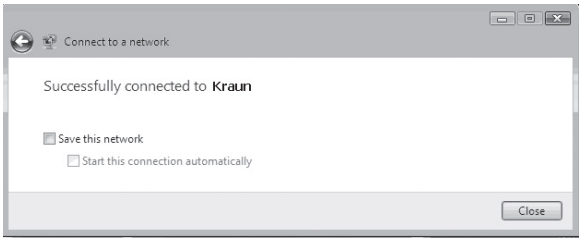

Figure 3.5v

5. The screen below will appear if the connection is successfull.

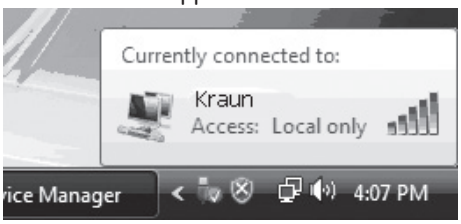

Figure 3.6v

Note: The sections below take Windows XP for example to introduce these above capabilities.

3.1 Set Wizard

Choose the menu Set Wizard on the top of the utility screen; you can select the operation mode for the adapter (we select the infrastructure mode for example).

Step 1: Select Station [infrastructure] (show in Figure 3 1). Then click Next.

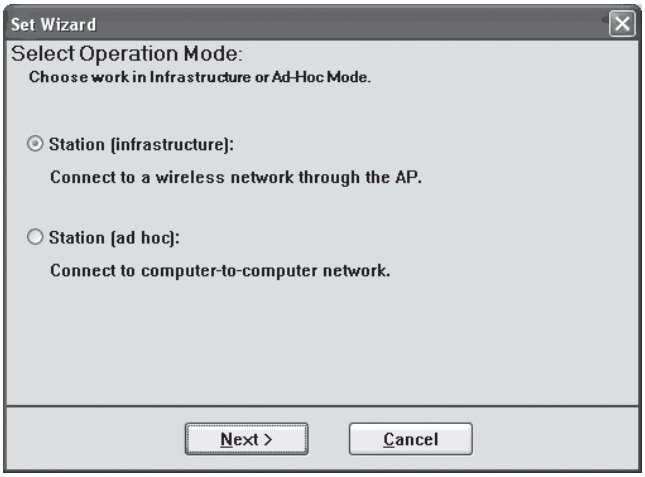

Figure 3 1

Step 2: Click Refresh button to update the wireless network (show in Figure 3 2). Then select the wireless network and click Next.

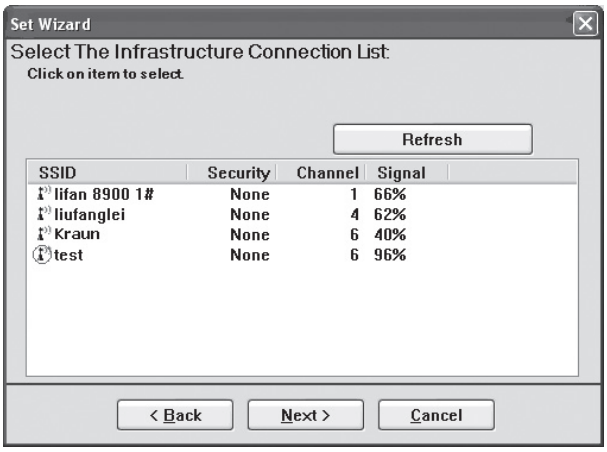

Figure 3 2

Step 3: After that, select the network authentication and data encryption, click OK; And the adapter can connect the specific wireless network.

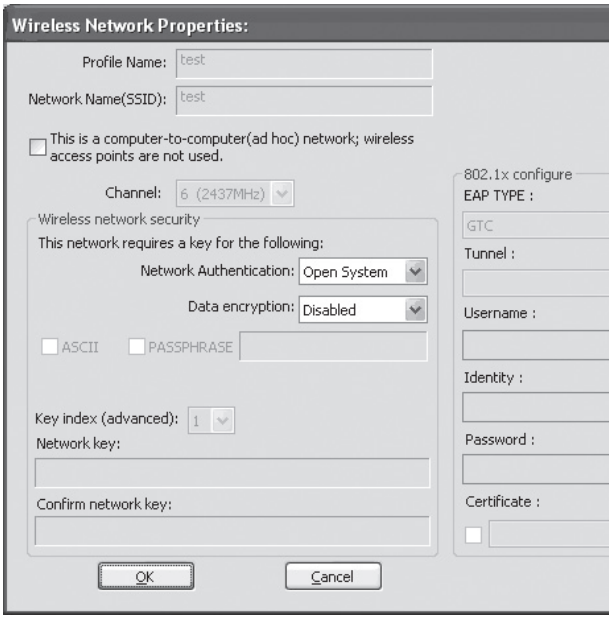

Figure 3 3

-> **Note:**

During the connection, if the screen prompts "Unsecured network", click OK to continue.

3.2 General Status

Choose the tab General as shown in Figure 3 4, the left filed displays the type of the adapter, the right field displays the status about the connection, including Status, Speed, Type, SSID, Signal Strength, Link Quality and other IP information.

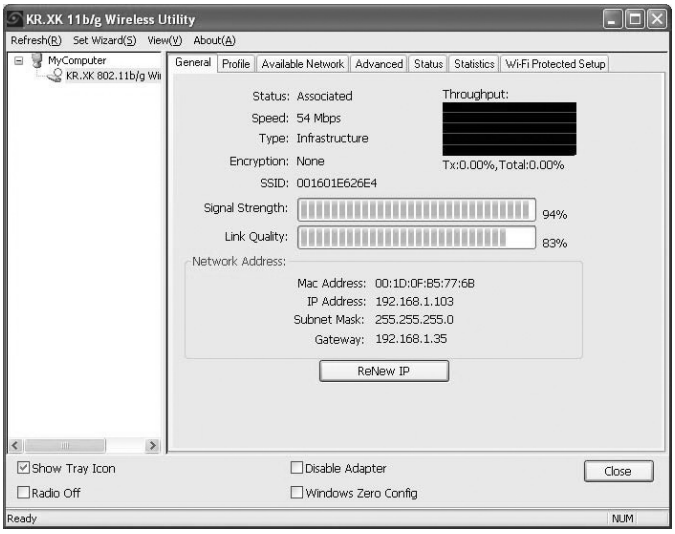

Figure 3 4

- Signal Strength - This shows the strength of the wireless signal.
- Link Quality - This shows the quality of the wireless connection.
- ReNew IP - Click the button to get the IP address from the AP.
- Show Tray Icon - Select the option to display the icon on the bottom of the desktop. Otherwise, you can see the two icons.
- Disable Adapter - If you select the option, the adapter can't work.
- Radio Off - If you select the option, the wireless function will be ineffective.

Click Close to close the screen.

3.3 Profile Management

Click the tab Profile as shown in Figure 3 5 to add, remove, edit, duplicate or set default for a profile.

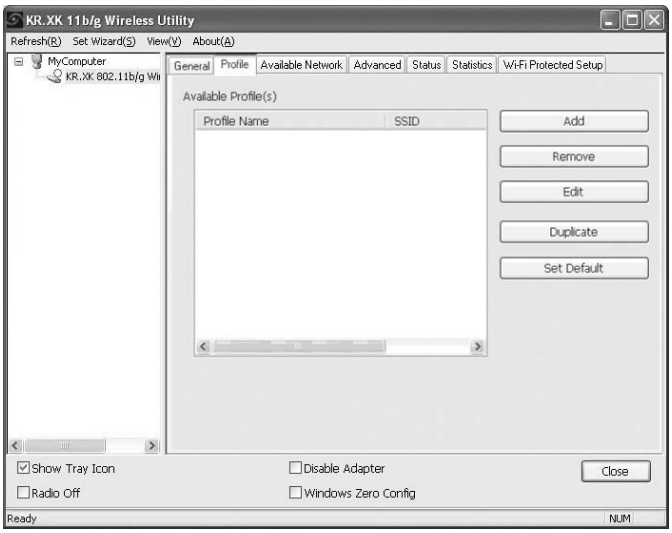

Figure 3 5

3.3.1 Add or Edit a Configuration Profile

Click the button Add or Edit (you should select an existed profile first to edit it) on the screen above, you can configure the profile as shown in Figure 3 6.

We add a new profile and configure it for example here.

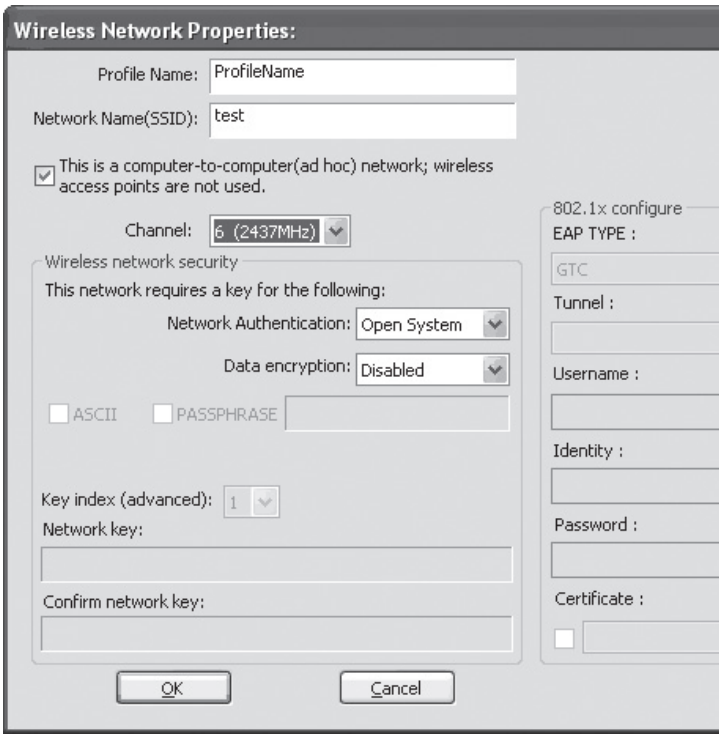

Figure 3 6

- Profile Name - Please enter the Profile name which identifies the configuration profile. This name must be unique. Note that the profile names are not case-sensitive.
- Network Name (SSID) - Please enter the IEEE 802.11 wireless network name. This field has a maximum limit of 32 characters.

-> Note:

The Profile Name and Network Name are necessary for the profile, you must configure it.

- Channel - If you want to use the specific channel to connect to the wireless network, select the option "This is a computer-to-computer (ad-hoc) network; wireless access points are not used." If you don't select the option, the system will search the available channel to connect.
- Wireless network security - This configure the security for the adapter.

-> Note:

You should configure the security for the adapter according with the wireless network that you want to connect. If the wireless network takes some security measure, you should configure the same security for the adapter accordingly. If the wireless network doesn't take security measure, you don't need to configure the security for the adapter.

- Network Authentication - Select which mode the Wireless PCI Adapter uses to authenticate to an access point. These modes are: Open System, Shared key, WPA-PSK, WPA2-PSK, WPA 802.1X, WPA2 802.1X, WEP 802.1X.
- Data encryption - Select the corresponding data encryption for the authentication. These encryptions are: Disabled, WEP, TKIP and AES.

-> Note:

1) Select different authentications and data encryptions, the security configuration is different.
2) When you select channel manually, the available network authentication are Open System, Shared key and WPA-None.
3) The RtWLan does not support WPA 802.1x authentication in Windows Vista, while the Windows Zero Config Tools may satisfy your need.

- ASCII - Select this option, you can enter any ASCII characters to compose the password.
- PASSPHRASE - Select this option, you can enter the characters from 0~9 to compose the password.
- Key Index - Select the index of the password.
- Network Key & Confirm network key - The fields configure the network key. The two should be the same.

- **802.1x configure** - This configures the 802.1x security, it is available when you select the data encryption as WPA 802.1X, WPA2 802.1X or WEP 802.1X.
  - EAP TYPE - Select the EAP type for the 802.1x configuration, the options are: GTC, TLS, LEAP, TTLS, PEAP.
  - Tunnel - Select the tunnel: MD5, GTC, TLS, MSCHAP-V2. The option is necessary for the EAP type of TTLS and PEAP.
  - Username - Enter the username for authentication. The option is necessary for the EAP type of TTLS and PEAP.
  - Identity - Enter the identity for the authentication.
  - Password - Enter the password for the authentication. The option is necessary for the EAP type of LEAP, TTLS and PEAP.
  - Certificate - Select the certificate you apply.

1. Open System authentication

When you select the Open System as the authentication, the Disabled and WEP can be available for the data encryption. If you select Disabled, you don't need to configure any passwords. If you select WEP, you can configure the password as follows.

For example: If the wireless network takes Open System authentication, WEP data encryption, the password is 64bit with the value of 0123456789. The index is 1.

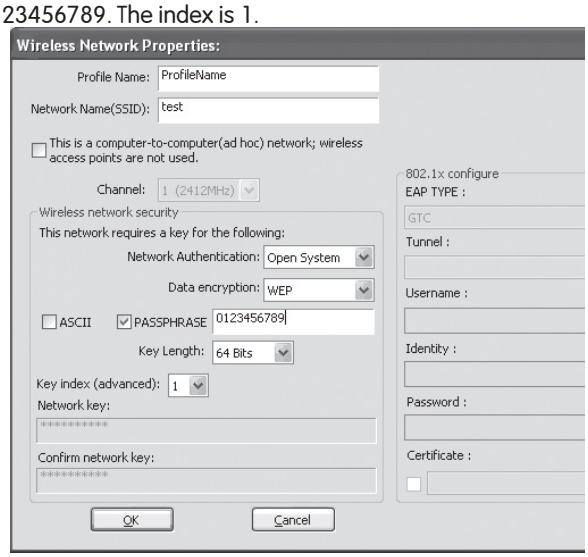

Figure 3 7

Step 1: Select the "Open System" as the Network Authentication.

Step 2: Select the "WEP" as Data encryption.

Step 3: Select the type for the password, you can select the ASCII or PASSPHRASE. For ASCII, you can enter any characters in the keyboard; For PASSPHRASE, you can enter the characters from 0 to 9.

Step 4: Select "64 Bits" as the Key Length, then enter "0123456789" as the password value.

Step 5: Select the Key index "1", and click the OK to save the configuration.

2. Shared Key authentication

When you select the Shared Key as the authentication, the only available data encryption is WEP.

-> Note:

The configuration for Shared Key authentication and Open System are similar, you can refer to the Open System authentication to configure it.

3. WPA-PSK authentication

When you select the WPA-PSK as the authentication, the available data encryptions are TKIP and AES. Please select the one according your need.

For example: If the wireless network takes WPA-PSK authentication, TKIP data encryption, the network key is 0123456789. You can configure it for adapter as follows.

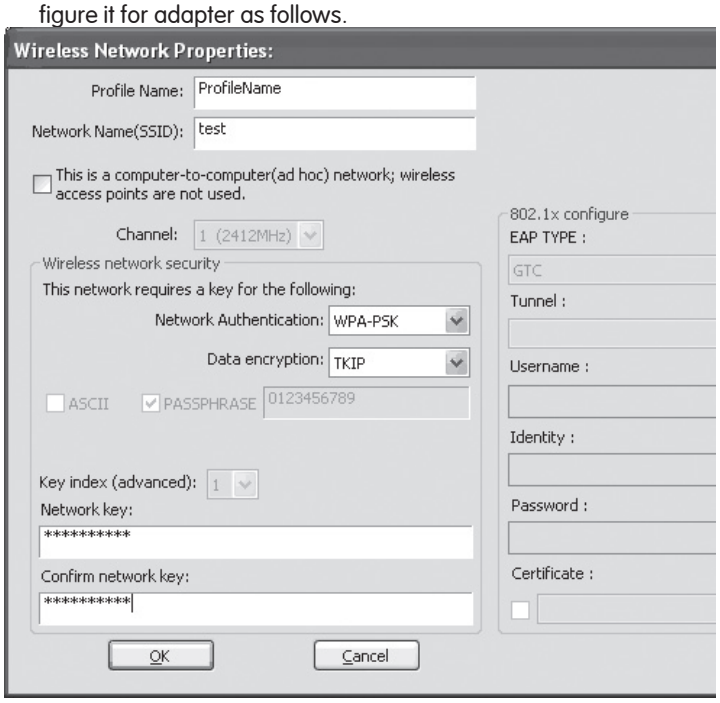

Figure 3 8

Step 1: Select the "WPA-PSK" as the Network Authentication.

Step 2: Select the "TKIP" as Data encryption.

Step 3: Enter the Network key and confirm it.

Step 4: Click the OK to save the configuration.

4. WAP2-PSK authentication

When you select the WPA2-PSK as the authentication, the available data encryptions are TKIP and AES. Please select the one according your need.

-> Note:

The configuration for WPA2-PSK and WPA-PSK are similar, you can refer to WAP-PSK authentication to configure it.

5. WPA 802.1x

When you select the WPA 802.1x as the authentication, the available data encryptions are TKIP and AES. For the authentication, you should configure the 802.1x security. Select the EAP Type and configure the corresponding options.

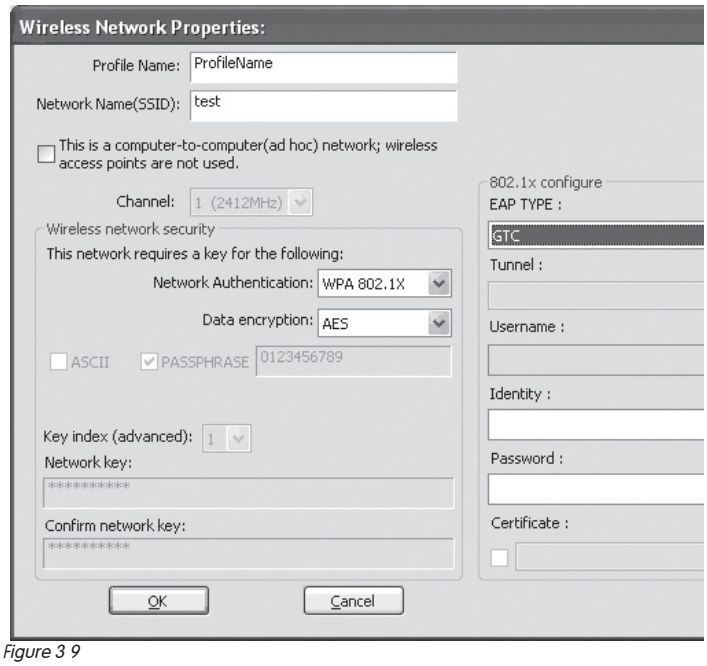

Figure 3 9

-> Note:

Select different EAP types, the configuration are different.

6. WPA2 802.1x

When you select the WPA2 802.1x as the authentication, the available data encryptions are TKIP and AES. For the authentication, you should configure the 802.1x security.

-> Note:

The configuration for WPA2 802.1x and WPA 802.1x are similar, you can refer to WPA 802.1x authentication to configure it.

7. WEP 802.1x

When you select the WEP 802.1x as the authentication, the only available data encryption is WEP.

-> Note:

The configuration for WEP 802.1x authentication and WPA 802.1x are similar, you can refer to WPA 802.1x authentication to configure it.

3.3.2 Remove a configuration profile

Follow the steps below to delete a configuration profile.

Step 1: Go to the Profile tab (shown in Figure 3 10).

Step 2: Select the profile name in the Profiles List.

Step 3: Click Remove.

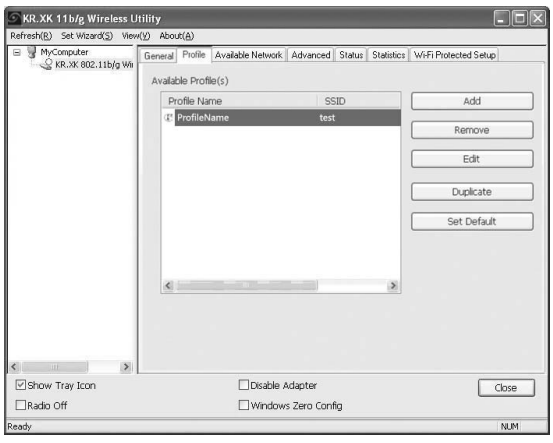

Figure 3 10

3.3.3 Duplicate a configuration file

Follow the steps below to change the name of a configuration profile.

Step 1: Go to the Profile tab (shown in Figure 3 10).

Step 2: Select the profile name in the Profiles List.

Step 3: Click Duplicate, and then enter the new name for the configuration profile.

3.3.4 Set default configuration profile

Follow the steps below to select a configuration profile as default. Once the adapter wants to connect a wireless network, it will select the default profile to connect firstly.

Step 1: Go to the Profile tab (shown in Figure 3 10).

Step 2: Select the profile name in the Profiles List.

Step 3: Click Set Default.

3.4 Available Network

Click the tab Profile as shown in Figure 3 11 to view the wireless networks. You can follow the steps below to accede to a specific network.

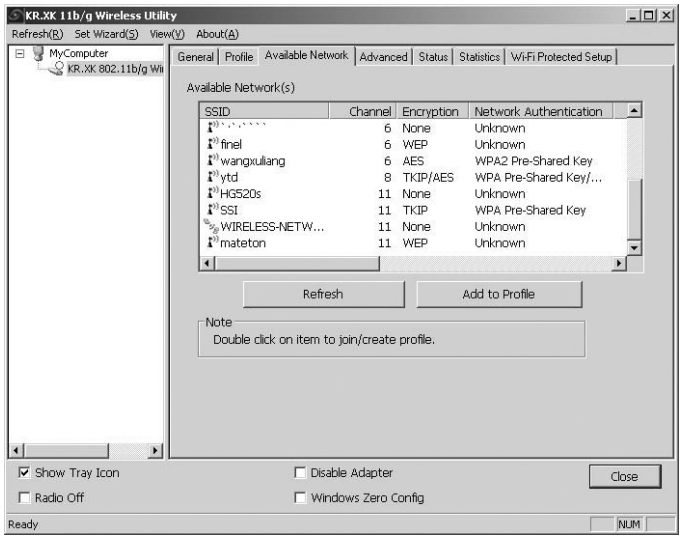

Figure 3 11

Step 1: Click Refresh to refresh the list at any time.

Step 2: Highlight a network name and click Add to Profile to connect to an available network. Fill in the Profile name and click OK to create the new configuration profile for that network.

3.5 Advanced

Click the tab Advanced as shown in Figure 3 12 to make further advanced configuration.

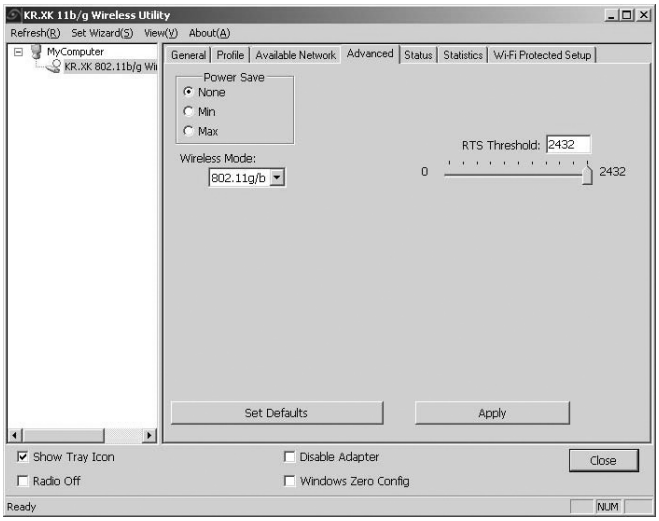

Figure 3 12

- Power Save Mode - Select the power save mode.
  - None - Turns power saving off, thus powering up the Wireless PCI Adapter continuously for a short message response time.
  - Min - Normal mode uses max when retrieving a large number of packets, then switches back to power save mode after retrieving the packets.
  - Max - Selects max mode to let the access point buffer incoming messages for the Wireless PCI Adapter. The Adapter will detect the access point if any messages are waiting periodically.
- Wireless Mode - Select the wireless mode for the network: 802.11b, 802.11g/b. The Wireless PCI Adapter must match the wireless mode of the access point with which it associates.

Click Set Defaults to restore the configuration to defaults.

Click Apply to make all the configurations to be effective.

3.6 Status

Click the tab Status as shown in Figure 3 13 to view the information about the connection.

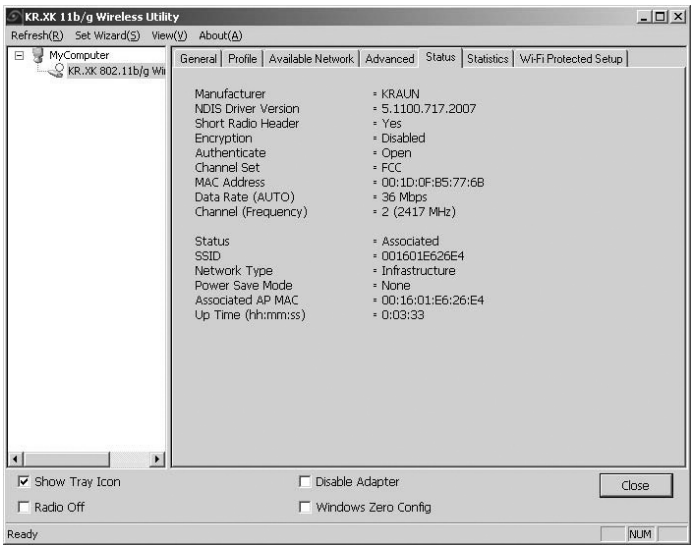

Figure 3 13

3.7 Statistics

Click the tab Statistics as shown in Figure 3 12 to view the traffic statistics about the connection. Click the Reset to refresh the information.

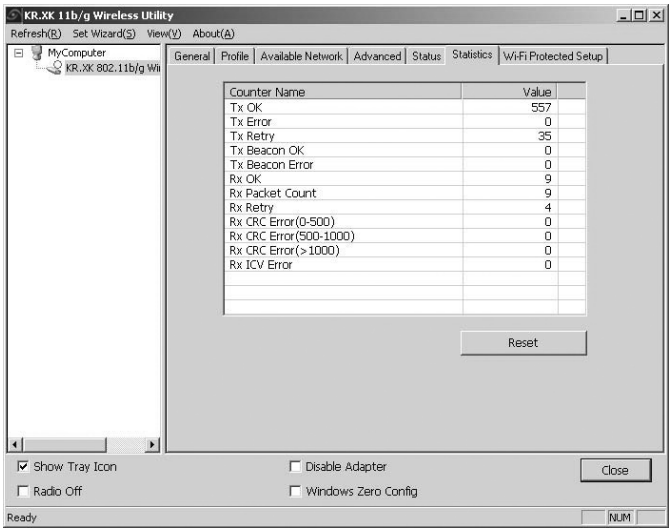

Figure 3 14

3.8 Wi-Fi Protected Setup

Click the tab Wi-Fi Protected Setup as shown in Figure 3 15, select different way to configure the adapter for Wi-Fi network.

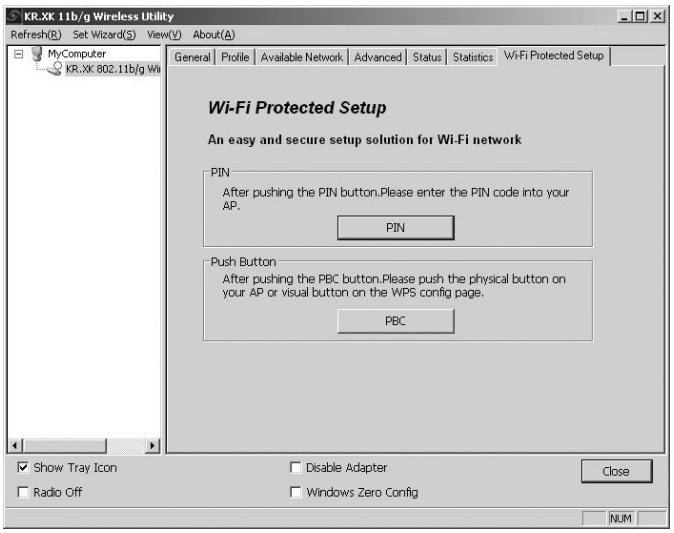
KR.XK 11b/g Wireless Utility
Refresh(R) Set Wizard(S) View(V) About(A)
MyComputer
KR.XK 802.11b/g Wi
General Profile Available Network Advanced Status Statistics Wi-Fi Protected Setup
Wi-Fi Protected Setup
An easy and secure setup solution for Wi-Fi network
PIN
After pushing the PIN button,Please enter the PIN code into your AP.
PIN
Push Button
After pushing the PBC button,Please push the physical button on your AP or visual button on the WPS config page.
PBC
Show Tray Icon
Disable Adapter
Close
Radio Off
Windows Zero Config
NUM

Figure 3 15

-> Note:

The Wi-Fi Protected Setup function takes effect only when the adapter and the AP (the adapter wants to connect) must support the Wi-Fi function first. Or else, the adapter can't connect the AP.

3.8.1 PIN

Step 1: Select the PIN (shown in Figure 3 15).

Step 2: Click the Refresh button, and then the searched AP will display in the screen (shown in Figure 3 16). Select the AP name as you need, and click Select button.

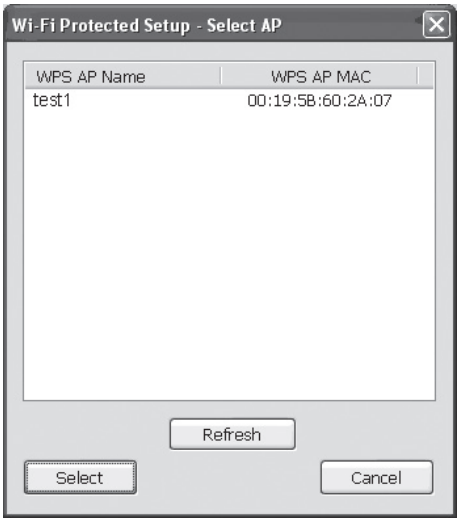

Figure 3 16

Step 3: After that, the PIN Code displays on the screen (shown in Figure 3 17). Now, you should enter the pin code into your AP.

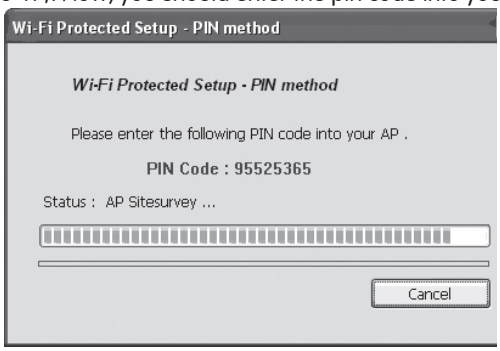
Wi-Fi Protected Setup - PIN method
Wi-Fi Protected Setup - PIN method
Please enter the following PIN code into your AP .
PIN Code : 95525365
Status : AP Sitesurvey ...
Cancel

Figure 3 17

Step 4: Finally, the adapter will create the profile and connect to the AP automatically; You can see the status screen as follow. This is a new connection for Wi-Fi network.

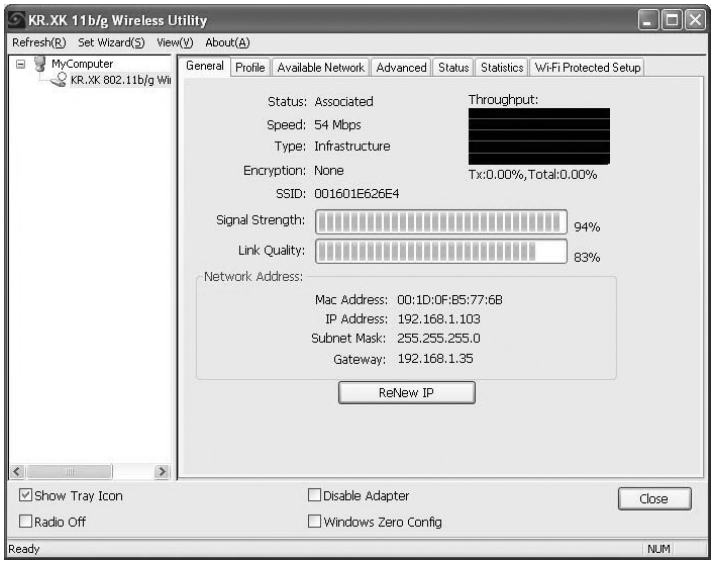

Figure 3 18

3.8.2 Question-Answer Method

Step 1: Click PBC as shown in Figure 3 15.

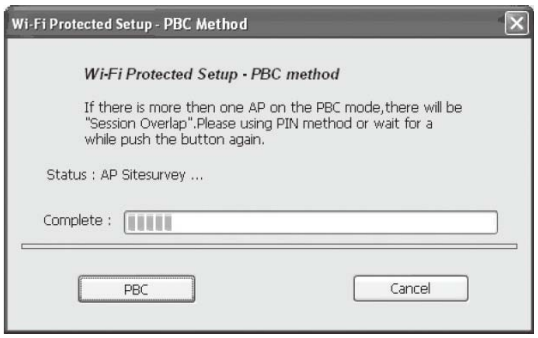
Wi-Fi Protected Setup - PBC Method
Wi-Fi Protected Setup - PBC method
If there is more then one AP on the PBC mode,there will be "Session Overlap".Please using PIN method or wait for a while push the button again.
Status : AP Sitesurvey ...
Complete :
PBC
Cancel

Figure 3 19

Step 2: Push the physical button on the AP.

Step 3: Finally, the adapter will create the profile and connect to the AP automatically.

Appendix A: Specifications

Normal	
Interface	32bit PCI Interface
Standards	IEEE802.11b; IEEE802.11g
Operating System	Windows 98, ME, 2000, 2003, XP, Vista, XP64
Transmission Distance	Indoor up to 100m, outdoor up to 300m (Standard transmission distance, it is limited to the environment).
Radio Data Rate	54/48/36/24/18/12/9/6Mbps or 11/5.5/2/1Mbps (Auto Rate Sensing)
Modulation	1M DBPSK; 2M DQPSK; 5.5M, 11M CCK; 6M, 9M, 12M, 18M, 24M, 36M, 48M, 54M OFDM;
Media Access Protocol	CSMA/CA with ACK
Transmit Power	15dBm (Typical)
Data Security	WPA/WPA2; 64/128/152-bit WEP; TKIP/AES
Frequency	2.4 ~ 2.4835GHz
Spread Spectrum	Direct Sequence Spread Spectrum (DSSS)
Power Consumption (Max)	11g: 420mA in full Transmit (TX), 330mA in full Receive (RX) 11b: 520mA in full Transmit (TX), 325mA in full Receive (RX)
Safety & Emissions	FCC, CE

Physical Environmental	
Operating Temp.	0°C~40°C (32°F~104°F)
Storage Temp.	-40°C– 70°C (-40°F~158°F)
Humidity	10% - 95% RH, Non-condensing
Dimensions (W×D×H)	5.2×4.8×.9 inch. (133×121×22 mm),

Appendix B: Glossary

- **802.11b** - The 802.11b standard specifies a wireless product networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.
- **802.11g** - specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.
- **Ad-hoc Network** - An ad-hoc network is a group of computers, each with a Wireless PCI Adapter, connected as an independent 802.11 wireless LAN. Ad-hoc wireless computers operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad-hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.
- **DSSS (Direct-Sequence Spread Spectrum)** - DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need of retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).
- **FHSS (Frequency Hopping Spread Spectrum)** - FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.
- **Infrastructure Network** - An infrastructure network is a group of computers or other devices, each with a Wireless PCI Adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.
- **Spread Spectrum** - Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).
- **SSID** - A Service Set Identification is a thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name. See also Wireless Network Name and ESSID.

- **WEP (Wired Equivalent Privacy)** - A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard.
- **Wi-Fi** - A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA, see http://www.wi-fi.net), an industry standards group promoting interoperability among 802.11b devices.
- **WLAN (Wireless Local Area Network)** - A group of computers and associated devices communicate with each other wirelessly, which network serving users are limited in a local area.
- **WPA (Wi-Fi Protected Access)** - A wireless security protocol use TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.

SAFETY NOTICES

Caution: Do not use this product near water, for example, in a wet basement or near a swimming pool.